

Exp : 9 :-

Build a Recurrent Neural Network.

RNN Mechanism

Topic :-

- What does RNN do?
- How it works?
- How to build RNN?
- How to implement RNN?

Goal :-
To build and implement RNN.

Aim:-
To build and implement RNN
for sequence modelling.



Objectives :-

- To understand the working principles & RNN.
- To preprocess sequential Data for RNN.
- To design and implement an RNN using Python.
- To train the RNN model and evaluate the performance.
- To analyze the outputs.

Pseudocode :-

- 1.) Start.
- 2.) Import necessary libraries.
- 3.) Load dataset.
- 4.) Preprocess dataset.

- clear data
- Take input encode as sequence
- Pad / truncate sequences
- split into training and validation sets
- 5.) Define RNN model.
- Initialize sequential model.
- Add embedding layer or input layer.
- Add simple RNN layers (3).

Points at below are blind - heterologous

• import numpy as np

• Model can handle thousands of data points

b) Compile model.

- Specify optimizer.
- Specify loss function.
- Specify evaluation

• Optimizer defining loss

- Train model.

- feed training data.
- Specify batch size and no. of epochs.
- validate any validation set.

g) Evaluate model.

- Test on unseen data.
- Print accuracy / loss.

h) End.

• classical

Output:

$$\text{Accuracy} = 0.71\%$$

$$\text{macro precision} = 0.7197.$$

$$\text{macro recall} = 0.7194.$$

$$\text{macro F}_1 \text{ score} = 0.7167.$$

• new classifier has improved

$$\text{precision} = [0.74181498 \quad 0.697520]$$

$$\text{Recall} = [0.6674 \quad 0.767847]$$

$$\text{F}_1 = [0.70244313 \quad 0.739923].$$

• loss function is still same

• new weight vector has been updated

Jobbed sign (a)

Confusion matrix output

1953.11.19 0 85342 ←

1953.11.19 0 81592 ←

1953.11.19 0 8592 ←

1953.11.19 0 8592 ←

Jobs at work (a)

Jobs 85342 ←

Jobs 81592 ←

Jobs 8592 ←

Classification report

Decision	recall	Score	Support
Neg	0.74	0.67	12500
Pos	0.70	0.70	12500
Diff	0.77	0.73	12500

accuracy

new co	old	new	old	new	old
ending	0.72	0.68	0.72	13500	
weighted	0.72	0.67	0.73	13500	
avg					

Jobs 8592 ←

Jobs 8592 ←



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Jobs 8592 ←